

a cyclic redundancy code block that receives frames from the receive state machine and the transmit buffer and sends frames to the transmit state machine.

10. The hardware system according to claim 8 wherein the frame receiver further includes a filtering block for filtering frames.

5 11. The hardware system according to claim 8 wherein the frame receiver further includes a retry operations block for determining whether retransmission of a particular frame is needed.

12. The hardware system according to claim 8 wherein the frame transmitter includes an acknowledgement block for determining that a particular frame was anticipated and sending an acknowledgement message corresponding thereto.

10 13. The hardware system according to claim 8 wherein the frame transmitter further includes a special frames generation block.

14. The hardware system according to claim 13 wherein the special frames generation block includes means for generating beacons.

15 15. A hardware system for performing media access control functions between a host central processing unit and a network, the system comprising:

a buffer interface that sends frames to the host central processing unit and receives frames from the host central processing unit;

a frame transmitter that includes a transmit buffer that receives frames from the buffer interface and sends frames to the network;

20 a frame receiver that includes a receive buffer that receives frames from the network and sends frames to the buffer interface; and

a timer block that controls timing for frames that are sent from and received by the system, the timer block thereby controlling interframe spacing and timing.

25 16. The hardware system according to claim 15 wherein the frame transmitter includes a transmit state machine, the frame receiver includes a receive state machine, and further including:

a cyclic redundancy code block that receives frames from the receive state machine and the transmit buffer and sends frames to the transmit state machine.

17. The hardware system according to claim 15 wherein the frame receiver further includes a filtering block for filtering frames.

30 18. The hardware system according to claim 15 wherein the frame receiver further includes a retry operations block for determining whether retransmission of a particular frame is needed.

19. The hardware system according to claim 15 wherein the frame transmitter includes an acknowledgement block for determining that a particular frame was anticipated and sending an acknowledgement message corresponding thereto.

20. The hardware system according to claim 15 wherein the frame transmitter further includes a special frames generation block.
21. The hardware system according to claim 20 wherein the special frames-generation block includes means for generating beacons.
- 5 22. The hardware system according to claim 15 further including an encryption/decryption block that sends and receives frames between the transmit buffer and the receive buffer.
23. A method for processing frames from a network to a host in a media access control layer with hardware operations, the hardware operations comprising:
receiving an incoming frame from the network; and
10 processing the incoming frame for time-critical functions, the time critical functions including:
sending an outgoing frame corresponding to the incoming frame to the host;
formulating time-critical responses;
accumulating statistics; and
updating a media access control state.
- 15 24. The method according to claim 23 wherein the time critical function of formulating time-critical responses includes formulating an outgoing response frame for transmission to the network.
25. The method according to claim 24 wherein the time critical function of formulating an outgoing response frame includes transmitting the outgoing response frame to the network.
26. The method according to claim 25 wherein the hardware operations for transmitting the outgoing
20 response frame include generating a special frame.
27. The method according to claim 26 wherein the special frame includes a beacon.
28. The method according to claim 26 wherein the hardware operation of formulating an outgoing response frame includes receiving an incoming frame from the host central processing unit corresponding to the outgoing response frame.
- 25 29. The method according to claim 23 wherein the time critical functions implemented by hardware operations include decrypting the incoming frame.
30. The method according to claim 23 wherein the time critical functions implemented by hardware operations include determining whether retransmission of a particular frame is needed.
31. The method according to claim 23 wherein the time critical functions implemented by hardware
30 operations include determining whether a particular frame was anticipated and sending an acknowledgement message corresponding thereto.